

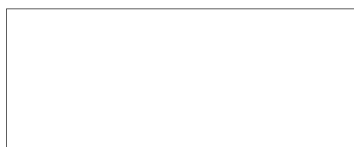
~~SECRET~~

CONFIDENTIAL

Monthly Engineering Report No. 14

Improvement of Wide-Band FM Radar Detector
Techniques

Period Covered: 1 November 1961 to 30 November 1961



25X1

DOCUMENT NO. 11
NO CHANGE IN CLASS. ☐
☐ DECLASSIFIED
CLASS. CHANGED TO: TS S ©2010
NEXT REVIEW DATE: _____
AUTH: HR 70-2
DATE: 230/80 REVIEWER: 010956

WARNING: This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, USC., Sections 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

~~SECRET~~
CONFIDENTIAL

Page 1 of 3

CONTROL NUMBER

EM5-5-5

~~SECRET~~
CONFIDENTIALGENERAL COMMENTS

This report covers the fourteenth period of contract activity for the improvement of FM radar detection techniques.

The job has been staffed by one full-time senior engineer and one full-time engineer.

ACTIVITIES OF THE REPORT PERIOD

During the previous period techniques for the evaluation of the system were developed, and one of the several possible system configurations was evaluated accordingly. The system was then rearranged so as to operate with the filter bank driven directly from the r.f. mixer. The resulting system is greatly simplified since frequency translation is required only in the r.f. mixer. The evaluation of this arrangement revealed that range resolution and target sensitivity (i.e., ability to detect small targets) were greatly improved, relative to the performance when using ferrodyne translation. These improvements in performance, together with the accompanying system simplicity, represent a significant advancement in the attempt to arrive at a practical system.

The "translation-less" arrangement described above is capable of presenting only seven one-inch range increments because only seven filters are available. In a refinement, a mixer-l.o. circuit was interposed between the r.f. mixer and the filter bank. This addition permits three groups of seven range increments (21 increments total) to be presented simultaneously.

On the afternoon of 21 November 1961 a presentation was given for the purpose of advising the representatives of several interested government agencies

CONFIDENTIAL Page 2 of 3

~~SECRET~~
CONFIDENTIAL

of the present status of the detection technique. It is expected that the collective criticism offered by these representatives will be useful in evaluating some of the practical operational aspects of the detection technique.

PROGRAM FOR THE ENSUING PERIOD

During the next and final period, the evaluation phase will be completed and the final report will be prepared.

CONFIDENTIAL

~~SECRET~~